

**Amendments to the Claims:**

This listing of the claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

- 1-5. (Canceled)
6. (Previously amended) A method for producing a conditionally-immortalized dorsal root ganglion progenitor cell, comprising:
  - (a) transfecting dorsal root ganglion progenitor cells plated on a first surface and in a first growth medium that permit proliferation with DNA encoding a selectable marker and a regulatable oncogene; and
  - (b) passaging the transfected cells onto a second surface and in a second growth medium that permit attachment and proliferation; and therefrom producing a conditionally-immortalized dorsal root ganglion progenitor cell.
7. (Original) A method according to claim 6, wherein the dorsal root ganglion progenitor cells are rat cells.
8. (Original) A method according to claim 6, wherein the dorsal root ganglion progenitor cells are human cells.
9. (Previously amended) A method according to claim 6 wherein the first and second surfaces are independently selected, and wherein the first and second surfaces comprise one or more substrates selected from the group consisting of a polyamino acid, fibronectin, laminin, collagen and tissue culture plastic.
10. (Previously amended) The method of claim 6 wherein the oncogene encodes a protein selected from the group consisting of v-myc, N-myc, c-myc, SV40 large T antigen, polyoma large T antigen, E1a protein of adenovirus, and E7 protein of human papillomavirus.
11. (Original) The method of claim 10 wherein the oncogene is v-myc.
12. (Previously amended) A conditionally-immortalized dorsal root ganglion progenitor cell containing an oncogene, wherein the cell differentiates into neurons upon inhibition of the expression of the oncogene.
13. (Previously amended) A cell according to claim 12, wherein the cell is a rat dorsal root ganglion progenitor cell transfected with an oncogene.

14. (Previously amended) A cell according to claim 12, wherein the cell is a human dorsal root ganglion progenitor cell transfected with an oncogene.

15. (Previously amended) A cell according to claim 12, wherein the cell differentiates into sensory neurons under appropriate culture conditions.

16. (Previously amended) A cell according to claim 12, wherein the cell differentiates into nociceptive sensory neurons under appropriate culture conditions.

17-46. (Canceled)

47. (Previously presented) A method for producing neurons, comprising culturing a cell produced according to claim 6 under conditions inhibiting expression of the regulatable oncogene.

48. (Previously presented) A method according to claim 47, wherein the cells are conditionally-immortalized rat or human dorsal root ganglion progenitor cells, and wherein the cells are cultured on a substrate in the presence of one or more differentiating agents.

49. (Canceled)

50. (Currently amended) A method for producing neurons, comprising culturing a ~~cell~~ conditionally-immortalized dorsal root ganglion progenitor cell containing an oncogene under conditions inhibiting expression of the oncogene, wherein ~~said cell is a conditionally-immortalized dorsal root ganglion progenitor cell containing an oncogene, and wherein~~ said cell differentiates into neurons upon inhibition of the expression of the oncogene.

51. (Currently amended) A method according to claim 50, wherein //the// said cell is a conditionally-immortalized rat or human dorsal root ganglion progenitor cell, and wherein //the// said cell is cultured in the presence of one or more differentiating agents.

52. (Canceled).

53. (Previously amended) A method for determining whether or not a conditionally-immortalized dorsal root ganglion progenitor cell is capable of differentiation into a neuron, comprising the steps of:

(a) detecting the presence or absence of  $\beta$ -III-tubulin expression in the cell in the proliferative growth condition; and

(b) if  $\beta$ -III-tubulin expression is detected, identifying said cell expressing  $\beta$ -III-tubulin as a conditionally-immortalized dorsal root ganglion progenitor cell that differentiates into neurons under cell culture conditions that allow conditionally-immortalized precursor cells to differentiate into neurons.

54-59. (Canceled)

60. (Currently amended) A method of identifying an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell, comprising:

(a) contacting a cell produced according to the method of claim 6 with a candidate agent; ~~and~~

(b) determining the level or activity of said protein in the presence of said agent and in the absence of said agent; and

(c) comparing the level or activity of said protein in the presence of said agent with the level or activity of said protein in the absence of said agent, wherein if said level or activity of said protein in the presence of said agent is different than the level or activity of said protein in the absence of said agent, said agent is identified as an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell.

61. (Currently amended) A method for identifying an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell, comprising:

(a) contacting a cell according to claim 12 with a candidate agent; ~~and~~

(b) determining the level or activity of said protein in the presence of said agent and in the absence of said agent; and

(c) comparing the level or activity of said protein in the presence of said agent with the level or activity of said protein in the absence of said agent, wherein if said level or activity of said protein in the presence of said agent is different than the level or activity of said protein in the absence of said agent, said agent is identified as an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell.

62. (Previously amended) A method for detecting the presence or absence of a protein in a sample, comprising:

(a) contacting a sample with a cell produced according to the method of claim 6; and

(b) subsequently detecting a response or lack of response in the cell,

wherein said response indicates the presence of said protein and said lack of response indicates the absence of the protein, and wherein said response is selected from the group consisting of a change in the level of an mRNA in said cell, a change in the level of a protein in said cell, and a change in the activity of a protein in said cell.

63. (Previously amended) A method for detecting the presence or absence of a protein in a sample, comprising:

(a) contacting a sample with a cell according to claim 12; and

(b) subsequently detecting a response or lack of response in the cell,

wherein said response indicates the presence of said protein and said lack of response indicates the absence of the protein, and wherein said response is selected from the group consisting of a change in the level of an mRNA in said cell, a change in the level of a protein in said cell, and a change in the activity of a protein in said cell.

64. (Previously amended) A method of detecting a human dorsal root ganglion nucleic acid or protein, comprising detecting the presence of said nucleic acid or protein within a cell produced according to the method of claim 6.

65. (Previously amended) A method of detecting a human dorsal root ganglion nucleic acid or protein, comprising detecting the presence of said nucleic acid or protein within a cell according to claim 12.

66. (Currently amended) A method of identifying an agent that affects dorsal root ganglion cell death, comprising:

(a) contacting a ~~cell~~ plurality of cells produced according to the method of claim 6 with a candidate agent under conditions that, in the absence of the candidate agent, ~~results~~ result in death of ~~the cell~~ said plurality of cells; and

(b) determining a number of said plurality of cells that die; and

(c) ~~subsequently~~ comparing the number of said plurality of cells that die in the presence of said agent to the number of said plurality of cells that die in the absence of said agent,

wherein if number of said plurality of cells that die in the presence of said agent is different than said number of said plurality of cells that die in the absence of said agent, said agent is identified as an agent that affects dorsal root ganglion cell death.

67. (Currently amended) A method for screening for an agent that affects dorsal root ganglion cell death, comprising:

(a) contacting a plurality of cells according to claim 12 with a candidate agent under conditions that, in the absence of the candidate agent, ~~results~~ result in death of the cell; and

(b) determining the number of said plurality of cells that die; and

(c) ~~subsequently~~ comparing the number of said plurality of cells that die in the presence of said agent to the number of said plurality of cells that die in the absence of said agent,

wherein if said number of said plurality of cells that die in the presence of said agent is different than said number of said plurality of cells that die in the absence of said agent, said agent is identified as an agent that affects dorsal root ganglion cell death.

68. (Currently amended) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a plurality of cells produced according to the method of claim 6; ~~and~~

(b) determining the number of said plurality of cells that die when said level of expression of said protein is altered and when said level of expression is not altered; and

(c) comparing the number of said plurality of cells that die when said level of expression is altered to the number of said plurality of cells that die when said level of expression is not altered,

wherein if said number of said plurality of cells that die when said level of expression is altered is different than said number of said plurality of cells that die when said

level of expression is not altered, said agent is identified as an agent that affects dorsal root ganglion cell death.

69. (Currently amended) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a plurality of cells according to claim 12; ~~and~~

(b) determining the number of said plurality of cells that die when said level of expression of said protein is altered and when said level of expression is not altered; and

(c) comparing the number of said plurality of cells that die when said level of expression is altered to the number of said plurality of cells that die when said level of expression is not altered,

wherein if said number of said plurality of cells that die when said level of expression is altered is different than said number of said plurality of cells that die when said level of expression is not altered, said agent is identified as an agent that affects dorsal root ganglion cell death.

70-73. (Canceled)

74. (Currently amended) A method for identifying an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell, comprising:

(a) contacting a cell produced according to the method of claim 47 with a candidate agent; ~~and~~

(b) determining the level or activity of said protein in the presence and absence of said agent; and

(c) comparing the level or activity of said protein in the presence of said agent with the level or activity of said protein in the absence of said agent,

wherein if said level or activity of said protein in the presence of said agent is different than the level or activity of said protein in the absence of said agent, said agent is identified as an agent that modulates the level or activity of a protein produced by a dorsal root ganglion cell.

75. (Previously amended) A method for detecting the presence or absence of a protein in a sample, comprising:

(a) contacting a sample with a cell produced according to the method of claim 47; and

(b) subsequently detecting a response or lack of response in the cell,

wherein a response indicates the presence of said protein and said lack of response indicates the absence of the protein, and wherein said response is selected from the group consisting of a change in the level of an mRNA in said cell, a change in the level of a protein in said cell, and a change in the activity of a protein in said cell.

76. (Previously presented) A method of detecting a human dorsal root ganglion gene or protein, comprising detecting the presence of a gene or protein within a culture of cells produced according to the method of claim 47.

77. (Currently amended) A method for screening for an agent that affects dorsal root ganglion cell death, comprising:

(a) contacting a plurality of cells produced according to the method of claim 47 with a candidate agent under conditions that, in the absence of the candidate agent, results result in death of the cell; and

(b) determining the number of said plurality of cells that die; and

(c) subsequently comparing the number of said plurality of cells that die in the presence of said agent to the number of said plurality of cells that die in the absence of said agent,

wherein if said number of said plurality of cells that die in the presence of said agent is different than said number of said plurality of cells that die in the absence of said agent, said agent is identified as an agent that affects dorsal root ganglion cell death.

78. (Currently amended) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a plurality of cells produced according to the method of claim 47; and

(b) determining a number of said plurality of cells that die when said level of expression of said protein is altered and when said level of expression is not altered; and

(c) comparing the number of said plurality of cells that die when said level of expression is altered to the number of said plurality of cells that die when said level of expression is not altered ,

wherein if said number of said plurality of cells that die when said level of expression is altered is different than said number of said plurality of cells that die when said level of expression is not altered, said agent is identified as an agent that affects dorsal root ganglion cell death.

### **INTERVIEW SUMMARY**

Applicants thank the Examiner for the courtesy of the telephonic Interview held November 25, 2003 between the Examiner and Applicants' representatives Anthony M. Insogna and Lawrence S. Graham. During the Interview, the participants discussed a draft Amendment previously submitted to the Examiner in which claims 60, 61, 66-69, 74, 75, 77 and 78 were amended in response to the Final Office Action mailed August 13, 2003.

Regarding the 35 U.S.C. § 112, first paragraph rejections of claims 49, 52, 54-59 and 70-73, Applicants informed the Examiner that they would cancel these claims without prejudice to their right to prosecute these claims in a separate application.

The participants then discussed the proposed claim amendments with respect to the 35 U.S.C. § 112, second paragraph rejections. Regarding claims 50-52, in which the Examiner contended the phrase "the oncogene" lacked antecedent basis, and claim 66, in which the Examiner contended the phrase "said plurality of cells" lacked antecedent basis, Applicants pointed out that the proposed amendments to these claims provided such antecedent basis.

With respect to claims 60, 61 and 74, the Examiner stated in the Office Action that the claims were indefinite because they did not recite a measurement step to determine the level or activity of a protein in the presence of an agent. Applicants pointed out that the proposed claims as amended included such a measurement or determination step. The Examiner, however, stated that the proposed language comparing the level or activity of the protein to a "control level" still rendered the claim indefinite, and suggested substitution with language whereby the level or activity of a protein in the presence of the agent is compared to the level or activity of a protein in the absence of the agent. Applicants agreed to amend the claim accordingly.



With respect to claims 66, 67, 77, the Examiner stated in the Office Action that the claims were indefinite because they did not recite a measurement step to determine the number of cells that die in the presence of the recited agent. Applicants pointed out that the proposed claims included such a measurement or determination step and comparison of the number to a control. The Examiner, however, stated that the proposed language comparing the number of cells that die to a control level still rendered the claim indefinite, and suggested substitution with language whereby the number of cells that die in the presence of the agent is compared to the number of cells that die of a protein in the absence of the agent. Applicants agreed to amend the claim accordingly.

With respect to claims 68, 69 and 78, the Examiner stated in the Office Action that the claims were indefinite because they did not recite a measurement step to determine the “number of cells of said plurality of cells that die when said level of expression is altered to the number of said plurality of cells that die when said level of expression is not altered.” Applicants pointed out that the proposed claims as amended included such a measurement or determination step. The Examiner, however, stated that the proposed language comparing the number of cells that die to a “control level” still rendered the claim indefinite, and suggested substitution with language whereby the number of cells that die when the level of expression is altered is compared to the number of cells that die when the level of expression is not altered. Applicants agreed to amend the claim accordingly.